COLORED STONES

ASSIGNMENT 10

THE CUTTING OF GEMSTONES... METHODS AND STYLES

IDENTIFICATION, PRODUCTION, MARKETING, BUYING

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I. THE IMPORTANCE OF PROPER CUTTING.

The average jeweler fails to recognize the great importance of cutting as it affects the beauty and saleability of gemstones. Too often he purchases stones for stock on the basis of the greatest weight or the greatest "spread" for the money invested. He does not realize that a correctly cut smaller stone at the same price is by far the better investment, because its added beauty appeals to almost every customer. Obviously, a stone with a wider appeal is likely to sell in a shorter period of time.

Practically all colored stones reaching the market today are cut in a manner that fails to show their maximum beauty of color; i.e., with the facets near the center of the base almost parallel to the top facet. Thus the visible color and bright reflections are confined largely to the edges of the stone and the center appears as a nearly colorless "window," through which the ring shank or the finger of the wearer is easily visible. This detracts from the beauty of the stone and often removes the appeal it would otherwise have for a customer.

Many lapidists claim that they cut stones with thin backs because standard mountings have such shallow settings that properly cut stones protrude from the bottom and rest against the finger of the wearer. Others claim that they must be cut in this manner to bring out the color of the stone. The truth is that invariably they want to retain maximum weight from the rough or reduce the cost of cutting by rushing the job so much that it is impossible to maintain proper angles and proportions. Actually, the necessary depth for maximum brilliancy and color in stones of lower R.I. is not an abnormal depth. In fact, many of the stones displaying "windows" have sufficient depth, but the angles of the pavilion facets depart so greatly from the correct angles that it is impossible for the stone to show maximum total reflection and depth of color. Colored gems should be cut so that the pavilion facets on each side correspond to almost straight lines, the angles of which vary slightly for different species. In Figure I the first drawing shows the proper proportions and angles for a gem of a

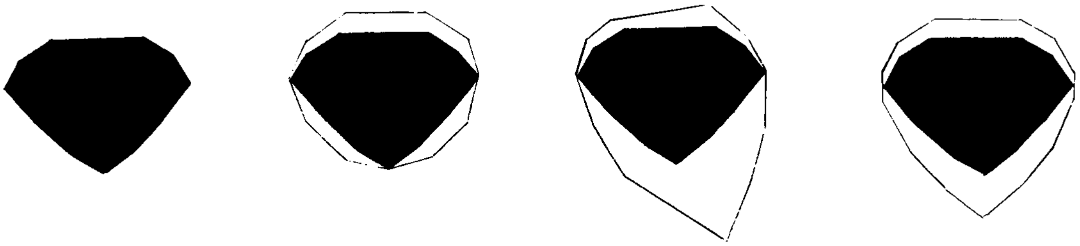


FIGURE I.

particular species. The additional drawings show typical examples of excess weight retention as a result of improper cutting of stones of the same species. The dark silhouettes indicate how these stones should have been cut.

To fashion colored stones properly requires not only the use of proper angles and an excellent polish, but the proper orientation. Correct orientation assures the most attractive color when the stone is examined through the table; i.e., "face up." It is not the same for all gemstones, but depends on the strength of pleochroism and the attractiveness of the pleochroic colors. When cutting alexandrite, for example, it is necessary that the red trichroic color be seen through the table, so that a maximum color change will be visible under different lighting conditions when the stone is mounted.

With a gem material that possesses easy cleavage, it is sometimes necessary to orient it so that a cleavage direction is not parallel to a polishing direction, rather than allowing the most attractive color to be the only controlling factor in determining orientation. In actual cutting, a compromise orientation is often achieved between the best color direction and the easy cleavage direction or directions.

Other factors may also enter into the cutting of a gem. For example, the inclusions that make possible the cat's-eye effect in chrysoberyl must be oriented so that the light reflected from them will produce a sharp eye. If there are not enough inclusions in the stone to cause a sharp eye with a normal cabochon shape, the cutter often makes the cabochon very high in relation to its width in order to sharpen what chatoyancy is available.

All of these factors are of great importance to the lapidist, since it is his duty, and to his advantage, to obtain maximum beauty from a piece of rough. The jeweler does not need to know how to orient gemstones to produce maximum beauty, but he must know whether the potential beauty has been brought out sufficiently to justify the price he is being asked to pay. If in an alexandrite, to continue the earlier example, the color change seen through the table is weak but the stone shows a strong color change through the girdle direction, the jeweler should only consider the color change that will be visible when the stone is mounted and only pay a price that is commensurate with the weak color change. Although the strong color change can be seen when the stone is loose, that has no value to the buyer. When it is mounted only the weak change will be apparent. In the same manner, a jeweler should refuse to pay the top price for an aquamarine that has a noticeable "window" in the center of the stone, that is poorly polished or unsymmetrical, or that is deficient even slightly in one or more of the features to be expected in an aquamarine of maximum beauty and quality. On the other hand, if he knows gem values, he may be able to buy such stones to advantage and have them recut to his specifications.

Gems cut in the Orient are often badly distorted in shape. When they are offered for sale and a comment is made about their poor symmetry, the reason advanced is usually, "there was a spot of color near one end of the rough and the cutter placed it near the culet so that the color would spread throughout the stone." It is true that if there is a color concentration near the culet, it will often appear to be evenly spread across the entire stone when viewed face up. However, by actual examination under immersion of quantities of such stones, it has been found that only a small percent actually have color concentrations near the culet. Thus it becomes readily apparent that they are cut in this manner for the purpose of obtaining greater weight from the rough. If an unsymmetrical stone actually does have a color spot near the culet, it is obvious that recutting to proper proportions would remove the spot and the stone would lose much, if not all, of its color. It is also evident that if the stone had been cut originally for beauty rather than for weight, a smaller and more symmetrically shaped stone would have been cut from the color area that is now near the culet of the unsymmetrical stone. The value of the unsymmetrical stone is no more than the current price of a properly proportioned stone cut from this colored area. The additional weight retained seldom compensates for the beauty that is sacrificed by incorrect cutting.

Most phenomenal stones are also cut in a manner that adds nothing to their beauty but considerably to their weight. Unless a star sapphire is almost completely transparent, nothing is added to (and something may be subtracted from) its beauty by leaving a significant portion of its weight below the girdle. A fine-quality 35-carat cat's-eye was recently examined in the GIA laboratory in which the weight was equally distributed above and below the girdle. The price per carat was considerably reduced, because half of the total weight would not have been visible after the stone was mounted. The owner was planning to saw the stone in half in order to produce two cat's-eyes of equal quality and greater value. He reasoned, correctly, that they would be more saleable because of better symmetry and because they would be easier to mount. Often the price per carat of a phenomenal stone does not take into account excess weight below the girdle. In addition, the sides of such stones are frequently so rounded and steep that it is virtually impossible to set them securely. These disadvantages must always be considered.

With experience it is possible to judge the degree to which a lapidist has brought out the inherent beauty of a gemstone. In addition, the jeweler will be able to realize added profits through the purchase and recutting of poorly cut stones.

II. A SYSTEM FOR CLASSIFYING & DESCRIBING CUTTING STYLES.

To classify the style of cutting displayed by a given stone, it is necessary to consider its girdle outline (top view), its cross-section outline (side view), and its principal parts.

A. Girdle Outline.

The first consideration is the shape or pattern of the girdle outline. Basically, girdle outlines are classified under the following descriptive terms, which are illustrated in Figures 2, 3 and 4. The numbers 1 through 35 refer to the corresponding sketches in Figure 2:

1. Round.
2. Oval.
3. Navette (pronounced nav-ETT), boat shape, or marquise (pronounced mar-KEEZ).
4. Emerald cut.
5. Pear, tear drop, or pendeloque (pronounced PAHN-dah-loke).
6. Rectangle.
7. Square emerald cut.
8. Antique cushion.
9. Square antique cushion.
10. Heart.
11. Square.
12. Baguette (pronounced bag-ETT).
13. Tapered baguette.
14. Triangle.
15. Half moon.
16. Cut-corner triangle.
17. Barrel.
18. Kite.
19. Keystone.
20. Seminavette.
21. Octagon.
22. Whistle.
23. Shield.
24. Trapeze.
25. Tapered pentagon.
26. Calf's head.
27. Epaulette (pronounced EP-ah-let).
28. Hexagon.
29. Diamond, or lozenge (pronounced LOZ-enj).
30. Pentagon.
31. Bullet.
32. Fan.
33. Rhomboid.
34. Star.
35. Window.

All of the shapes shown in Figure 3 are called OVALS. Even though the narrower ones are similar in appearance to the navette, they DO NOT have pointed ends. In order to describe such narrow ovals, perhaps they could be called NAVETTE-SHAPED OVALS.

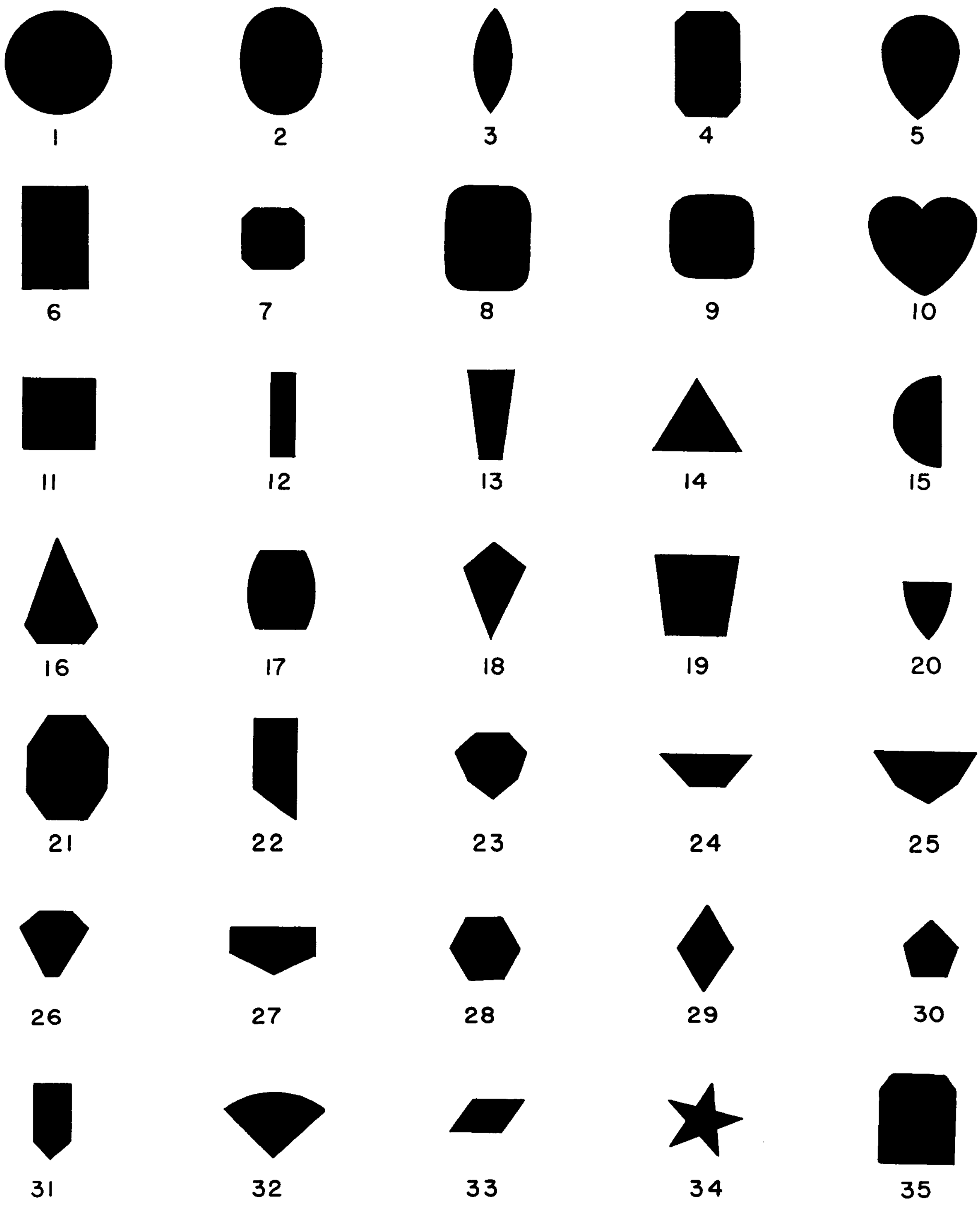


FIGURE 2.

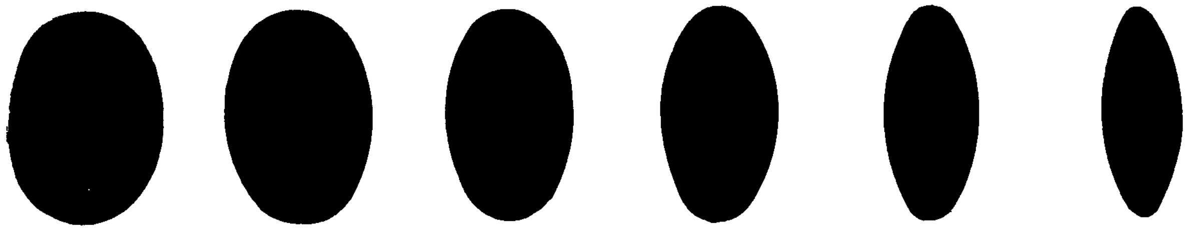


FIGURE 3.

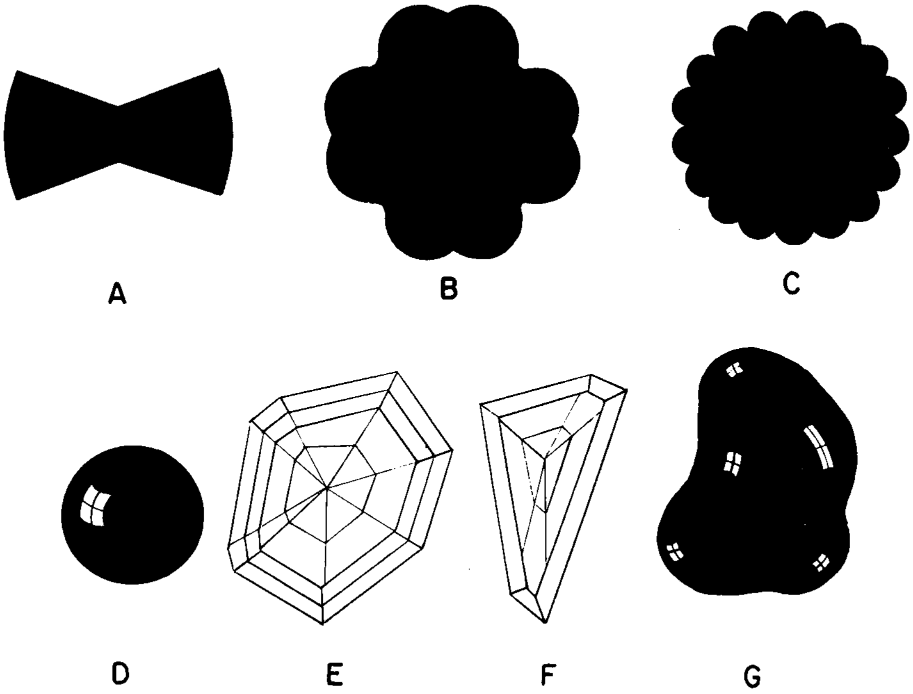


FIGURE 4.

A few other shapes include the BOW TIE, FOUR-LEAF CLOVER, FLOWER SHAPE and SPHERE (A, B, C and D in Figure 4). Other naturalistic forms not illustrated include representations of leaves, fish, insects, etc. FREE FORM (Figures 4E and 4F) is a name applied to a faceted stone with an unsymmetrical outline. BAROQUES (pronounced bah-ROEKS) are irregular, rough stones polished without further shaping (Figure 4G); they are also called TUMBLED STONES.

B. Cross-Section Outline.

The cross-section outlines of the majority of faceted stones are not classified by descriptive terms. They resemble a cut-corner triangle; i.e., with a flat top facet and a pointed base (similar to the left-hand sketch in Figure 1). The exceptions are stones cut with a faceted top and a flat base (such as the rose cut) and those having faceted sides in conjunction with flat tops and bases (such as the plaque).

Stones with curved surfaces may have only the top surface curved, with either a flat base or a hollowed-out back; or they may have both surfaces curved, and the curves may vary to give very high, high, medium or flat domes.

C. The Principal Parts of a Gemstone.

Gemstones cut with flat facets usually consist of the following principal parts: the GIRDLE (the portion that encircles the stone at the boundary between the crown and pavilion facets; i.e., the setting edge), the CROWN (that portion of the stone above the girdle), the TABLE (the large flat facet on top of the crown), the BEZEL (the inclined area of the crown between the table and the girdle), the PAVILION (the inclined area between the girdle and the culet), the CULET (pronounced KEW-let; the small flat facet at the point where the pavilion facets meet, the purpose of which is to reduce the possibility of damage). Stones cut with curved surfaces have only a girdle, crown and pavilion.

III. THE PRINCIPAL TYPES AND STYLES OF CUTTING.

A. Faceted Stones.

1. Brilliant-cut Style.

In this style, the inclined facets are triangular or more or less kite shaped. The inclined facets are shown shaded in Figure 5.

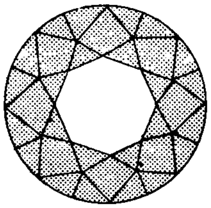
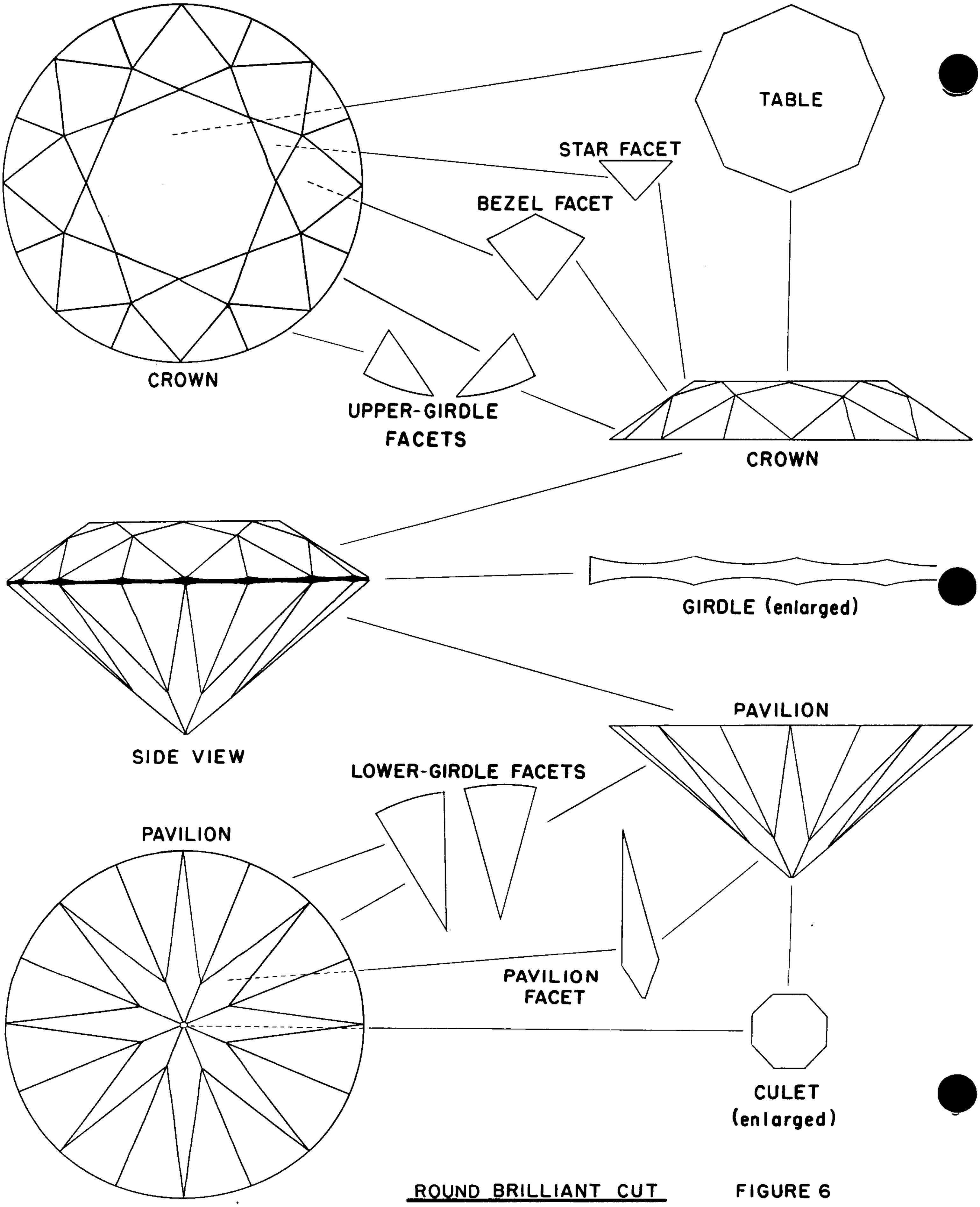


FIGURE 5.

The most important of the brilliant-cut styles is the STANDARD ROUND 58-FACET BRILLIANT (Figure 6). The crown consists of 33 facets: one table, eight star facets, eight bezel facets, and 16 upper-girdle facets (also known as top-half or top-break facets). The pavilion consists of 25 facets: one culet, eight pavilion facets, and 16 lower-girdle facets (also called bottom-half or lower-break facets). The culet is sometimes omitted, in which case the pavilion consists of 24 facets.



ROUND BRILLIANT CUT FIGURE 6

Figures 7 and 8 outline a simple step-by-step method of drawing the crown and pavilion of the round brilliant. The crown is formed by combining diagrams A through F in Figure 7 as follows:

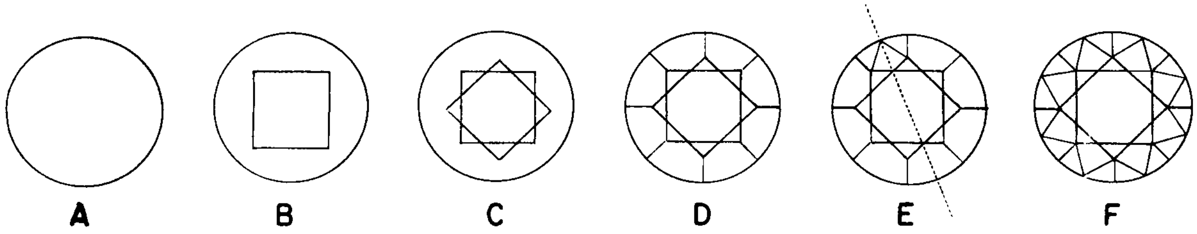


FIGURE 7.

(A) Draw a circle, (B) place a square in the circle, (C) place a second square at a 45° angle to the first square, (D) draw lines from the points of the square to the circle, (E) draw a light dotted line through the center of the circle and through the point formed by the two adjoining star facets, (F) connect the points of the star facets with the midpoints found in Step E.

Form the pavilion by combining diagrams A through F in Figure 8 as follows:

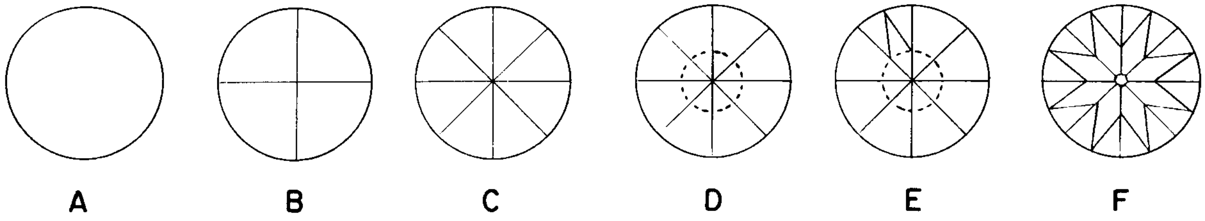


FIGURE 8.

(A) Draw a circle, (B) place a cross in the circle, (C) place another cross at a 45° angle to the first cross, (D) draw a smaller circle inside the first circle, (E) draw lines from the intersection of the small circle and the cross lines to the midpoints of the arc on the larger circle (these form the pavilion facets), (F) draw the seven other pavilion facets (as in the preceding step), erase the small center circle, and draw a tiny circle to indicate the culet.

Other modifications of the brilliant-cut style, which are illustrated on the accompanying plates entitled "Cutting Styles," include the following: old European cut, Brazilian cut, English square-cut brilliant, old-mine cut, Lisbon cut, double-cut brilliant, seminavette, scissors cut, spiral cut, Portuguese cut, brilliant-cut briolette, zircon cut, honeycomb cut, Cairo star cut, star cut, marquise cut, pear-shape cut, heart-shape cut, single cut, French cut, all rose cuts, rondelle, Swiss cut, split brilliant cut, twentieth century cut, King Cut, oval cut, English round-cut brilliant, jubilee cut, Magna Cut, half-moon cut. (Note: The King Cut and Magna Cut are patented styles used only for diamonds.)

2. Step-Cut Style.

This style is distinguished by the fact that one or more of the edges of ALL of the inclined facets are parallel to the girdle edge (Figure 9). The facets are usually arranged in rows or tiers that resemble a flight of stairs; hence the name.

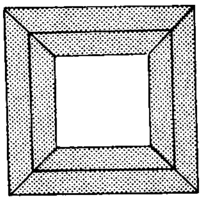


FIGURE 9.

The most important of the step-cut styles is the EMERALD CUT. It is usually rectangular but is sometimes square, in which case it is known as a SQUARE EMERALD CUT. It has rows of elongated rectangular facets on the crown and pavilion, parallel to the girdle, and with corner facets. Corresponding facets are usually placed on the girdle. The number of rows, or steps, may vary. 58 facets (including the eight facets on the girdle) is the usual number on an emerald-cut stone.

The emerald cut and other modifications of the step-cut style, which are illustrated on the accompanying plates entitled "Cutting Styles," include the following: trap brilliant, square emerald cut, baguette, tapered baguette, square cut, table cut, bevel cut, step-cut bead, triangle cut, bullet cut, keystone cut, hexagon cut, long hexagon cut, kite cut, lozenge cut, trapeze cut, pentagon cut, epaulette cut, tapered pentagon cut, cut-corner triangle, octagon cut, whistle cut, rhomboid cut, fan-shape cut, shield cut, window cut.

Combinations of the brilliant- and step-cut styles are called

MIXED CUTS. By combining the outline name with the above terms, the style of the cut may be classified; for example, a heart-shaped brilliant-cut stone, a square step-cut stone, a rectangular mixed cut, etc.

B. Cabochon Style.

In contrast to faceted stones, those cut with curved surfaces are called CABOCHONS (pronounced CAB-oh-shawn), and are classified as follows:

1. Single Cabochon (Figure 10A).

   This style has a curved top and a flat base. The curved surface may be high, medium or low.

2. Double Cabochon (Figure 10B).

   This style has both upper and lower portions curved. It is usually steep above the girdle and shallow below, but may be the reverse. Star stones, cat's-eyes and moonstones are usually cut in this manner.

3. Hollow Cabochon (Figure 10C).

   The hollow cabochon consists of a simple cabochon with a concave depression in the base. Its main purpose is to lighten the color of an otherwise too-dark stone.

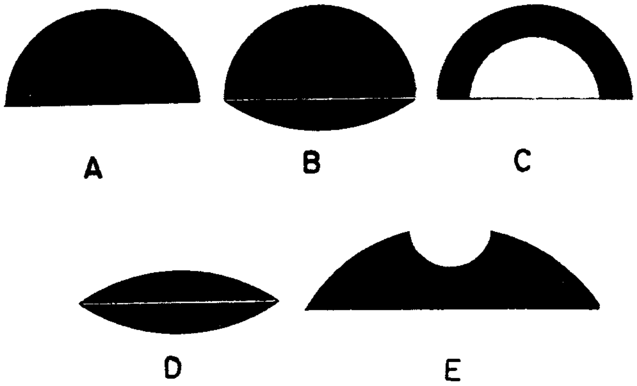


FIGURE 10.

4. Lentil Cabochon (Figure 10D).

   This is a comparatively thin, flat variation of the double cabochon in which both surfaces have the same degree of curvature. It is commonly used for opals.

5. Reverse Cabochon (Figure 10E).

   Seldom encountered in the trade, the reverse cabochon is a simple cabochon with a concave depression in its top surface. It is used primarily to produce unusual effects in star stones and cat's-eyes.

C. Carved and Engraved Stones.

The design of a carved gem is produced by working the entire visible surface of the stone. The design of an engraved gem is produced by engraving into the stone but leaving part of the surface unworked, thus merely providing a background for the design. The principal types are as follows:

1. Cameo.

A cameo is a carved gem produced by cutting away portions of the surface above the girdle so that the entire design is ABOVE the girdle edge (Figure 11A). When fashioned from genuine gem materials, they are known as STONE CAMEOS; when cut from shell, they are known as SHELL CAMEOS; those of coral are called CORAL CAMEOS, etc. Cameos cut from synthetic gem materials are known as SYNTHETIC-STONE CAMEOS, and those made from glass and other imitations are known simply as IMITATION CAMEOS.

2. Intaglio (pronounced in-TAL-yo).

This is a form in which the design is engraved INTO the stone, so that all of the design lies BELOW the girdle edge (Figure 11B). Sometimes the figure is engraved into the stone; occasionally the background is engraved, leaving a raised figure. This type is used mainly as a seal. Like cameos, intaglios may be made from natural, synthetic or imitation materials.

3. Chevee (pronounced sheh-VAY).

The chevee is a flat-topped gemstone or other material with a large polished oval depression in the center (Figure 11C).

4. Cuvette (pronounced koo-VET).

The cuvette is a

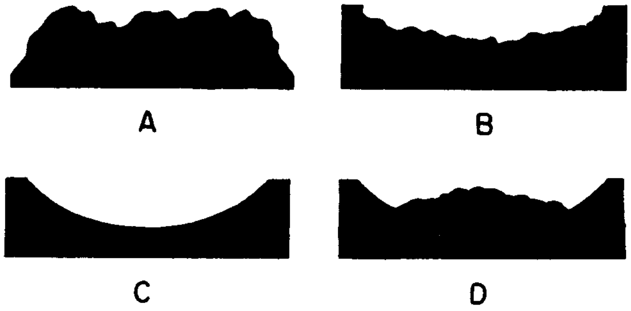


FIGURE 11.

variety of chevee with a raised cameo design in the oval depression (Figure 11D).

5. Scarab.

   A scarab is a gemstone or other substance that has been carved or engraved to represent the scarabaeus, a beetle common to the countries bordering the Mediterranean Sea.

6. Statuettes and Figurines.

   These are usually carved from poorer quality gem materials to represent animals, people, leaves, flowers, temples, etc.

7. Pierced Carvings.

   This type of carving is made by drilling openings through the stone, usually as a means of removing unsightly flaws. After the flaws are removed, the drill holes are cleverly worked into the design of the carving.

8. Illusion Cut.

   This is a novelty form of cutting and engraving. It is made by cutting a transparent material (usually rock crystal) into the shape of a triangular block and placing grooves of varying widths and inclinations on one edge of the block. When the grooves are viewed through the opposite flat surface, a three-dimensional effect is observed, due to reflection of the grooves from the other two surfaces, which are inclined toward the engraved edge.

D. Miscellaneous Styles.

1. Plaque (pronounced PLACK)

   There are many variations of this form. The distinguishing characteristic is two parallel surfaces, usually flat, with a relatively narrow space between. Some have a beveled edge, although this is not an essential characteristic. If the area between the two parallel surfaces is quite thick, the stone is usually called a TABLET.

2. Bead.

   The bead is usually essentially spherical, with or without facets, but is distinguished by the fact that it always has a hole drilled through the center.

3. Rondelle, or Roundelle.

The rondelle is similar to the bead, but consists simply of a flat disk with a hole drilled through the center. It is generally used as a spacer or separator between beads.

4. Rod.

As the name implies, the rod is a cylindrical form. It is usually used for flame-polished synthetic corundum or spinel.

5. Oriental, or Native, Cut.

This term is applied principally to stones from the Orient that are characterized by a lack of symmetry and excessive weight saving. Stones cut in this manner usually have distorted shapes, unsymmetrical placement of facets, and other cutting faults.

6. Calibre, or Caliber, Cut.

This is a term applied to small, more or less rectangular stones that are used principally to produce lines or fulfill the design of a piece of jewelry. The resulting effect is known as CALIBRE WORK, because the stones are often cut to a calibrated size in order to fit the mounting. Shapes such as the keystone are used to produce curved lines.

7. Melee (pronounced MELL-ee).

Melee is a term used primarily to describe small, round, faceted diamonds; however, it is also sometimes applied to colored stones of the same size and shape.

8. Rose Cut, or Rosette.

This is an old style of cutting that is rarely encountered except in garnets and small diamonds. The base is flat and the top is usually completely covered with small facets that meet at a point in the center of the stone. Exceptions to this general rule are such cuts as the double rose. Although rose-cut diamonds are called "diamond chips" by those who do not recognize this style of cutting, the term "chip" correctly applies only to small, irregular fragments that have a variable number of haphazardly placed, irregularly shaped facets.

IV. CUTTING AND POLISHING COLORED STONES.

The operations required for fashioning cabochons include sawing, grinding or shaping, sanding, and polishing. If the rough material needs to be reduced in size, this initial step is usually accomplished with a diamond saw, a metal wheel charged with diamond dust. The "mud" saw, a metal wheel that utilizes silicon carbide as an abrasive, is seldom used. Thin diamond-charged bakelite or phosphor-bronze saws are often used for opal and other comparatively fragile materials. The shaping operation consists of grinding the sawed piece to the desired shape on silicon-carbide wheels of various grits under a constant stream of water, or on hard metal laps with silicon-carbide powder and water. Sanding is accomplished with hard-wood wheels covered with coarse- and fine-grit Carborundum paper. This operation, which usually requires the stone to be cemented to a dop stick, removes all scratches and does the final shaping. The stone is then polished on hard felt, leather or cloth laps with tin oxide, cerium oxide, pumice, rouge or other polishing agents.

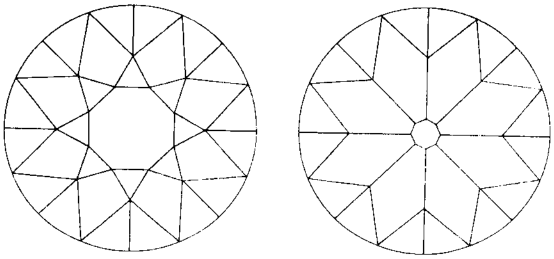
The faceting of transparent gem materials usually requires more planning and care than is necessary in fashioning opaque and translucent cabochon-cut stones. As mentioned previously, proper orientation and attention to correct angles and proportions are important considerations. The roughing-out step is accomplished in much the same manner as with cabochon cuts. The table is usually roughed in first, after which a regular angle is formed around the crown and the girdle is set up. Then the pavilion is shaped in such a way that a fairly thick girdle is left to provide necessary material for placing and polishing the facets.

Faceting is accomplished with the jamb peg or with mechanical faceting heads. The jamb peg is an ingenious method of providing a rigid holder for the dop stick. Set perpendicularly to the horizontal lap is a board containing a number of indentations. The angle at which a facet is to be placed on a gemstone is controlled by the hole into which the pointed end of the dop stick is placed. By holding the end of the dop stick in one of the holes on the board, the lapidary can keep the cutting at a very definite angle, which can be duplicated on the other side of the stone.

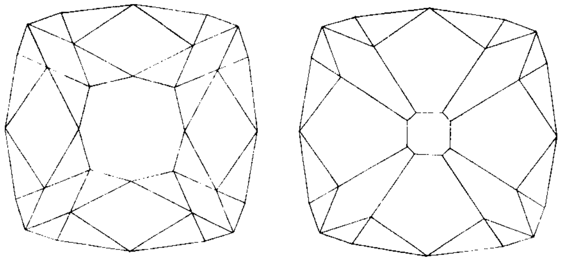
A faceting head is a device that controls the angle of the dop stick to the lap and that is graduated so that the stone can be turned to polish any number of definite facets with the same angular relationship to the girdle. When the angle is set for one of the main pavilion facets in a brilliant-cut stone, the faceting head can be left at the same angle while being turned through eight divisions in the 360° rotation. In other words, 45° angles are marked on the holding device so that eight equally spaced facets can be placed. Most faceting devices can also be set to 16-fold symmetry.

The facets are usually cut on a horizontal cast-iron, copper or copper-alloy lap, using silicon carbide, boron carbide or diamond dust as the abrasive. After the crown facets are cut, they are usually polished while the stone is still cemented to the dop stick in its original position. A number of different polishing laps are used, including lead, tin, pewter, wood and pitch. Tin oxide, tripoli, pumice, rouge, chromic oxide, alumina, titanium oxide and cerium oxide are utilized for the polishing agents.

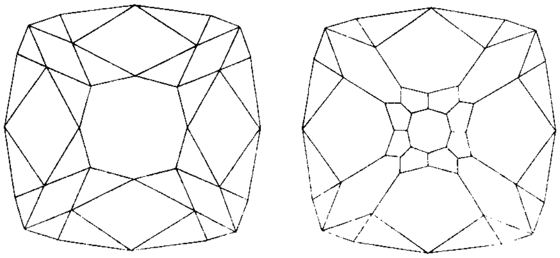
CUTTING STYLES



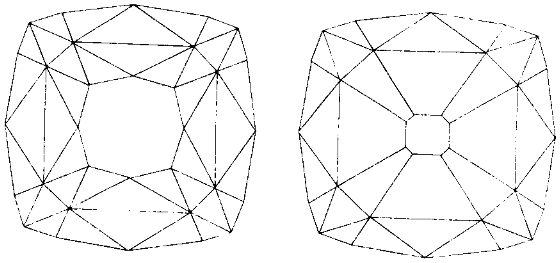
OLD EUROPEAN CUT



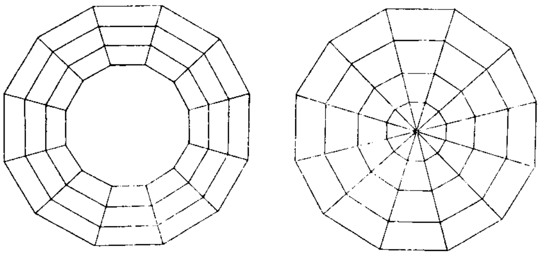
OLD-MINE CUT



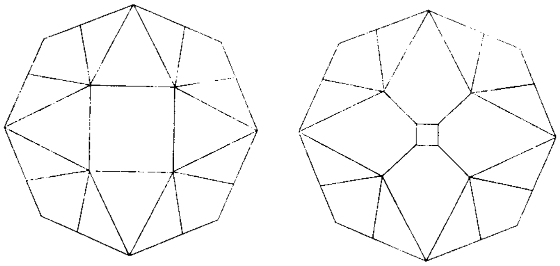
BRAZILIAN CUT



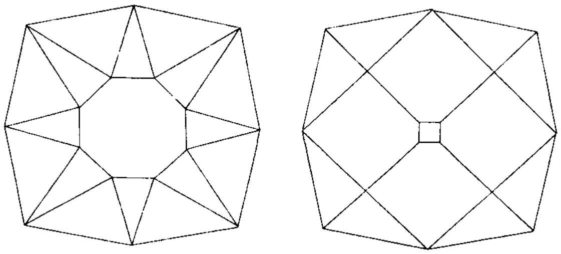
LISBON CUT



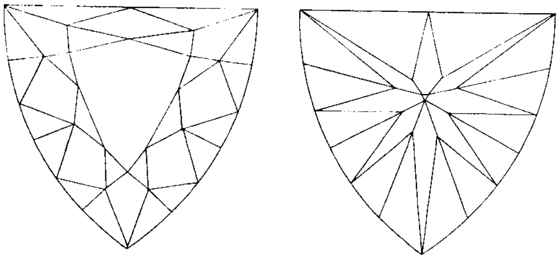
TRAP BRILLIANT CUT



DOUBLE-CUT BRILLIANT

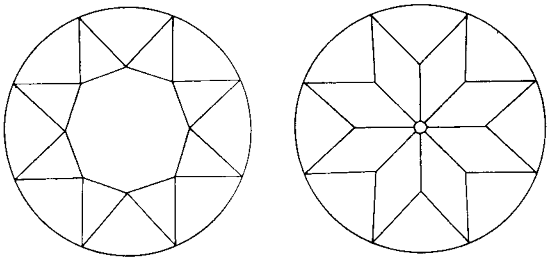


ENGLISH SQUARE-CUT BRILLIANT

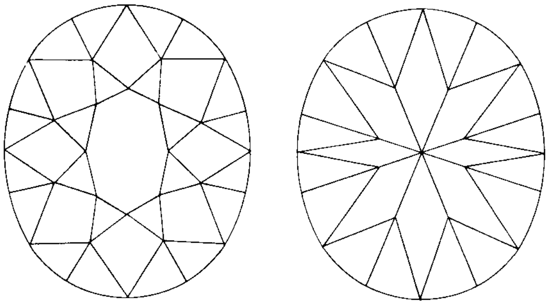


SEMINAVETTE

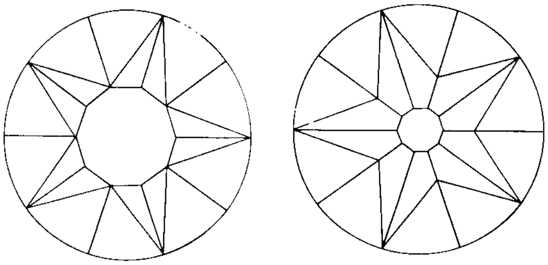
CUTTING STYLES



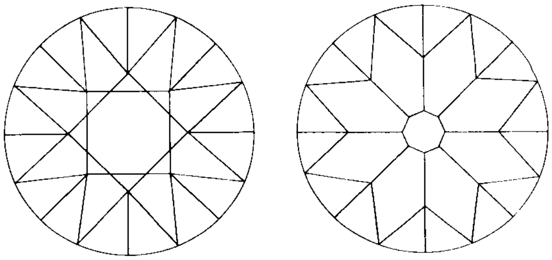
SWISS CUT



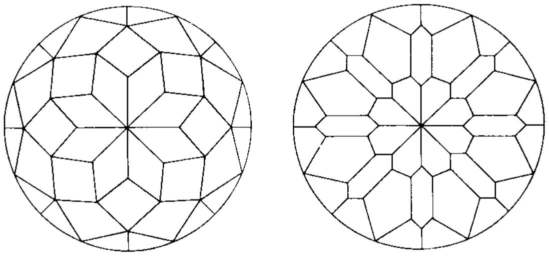
OVAL CUT



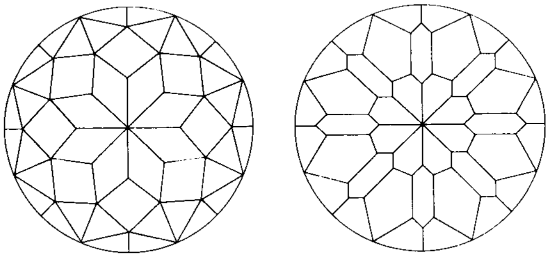
SPLIT-BRILLIANT CUT



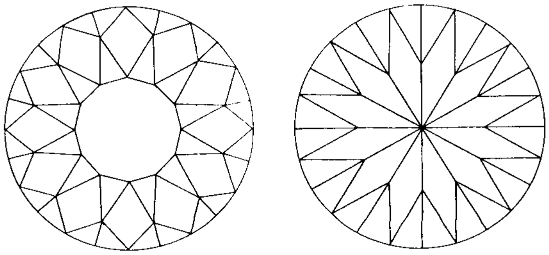
ENGLISH ROUND-CUT BRILLIANT

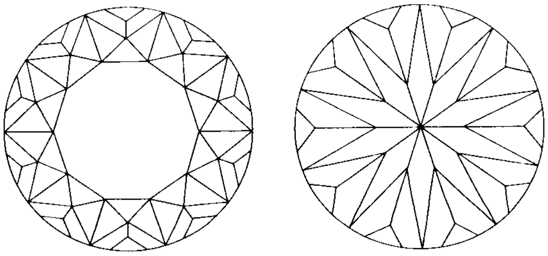


TWENTIETH-CENTURY CUT



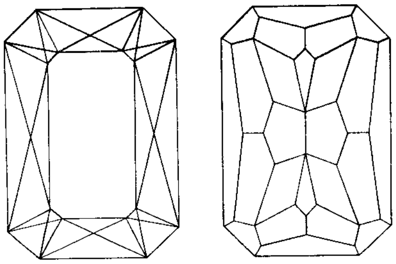
JUBILEE CUT



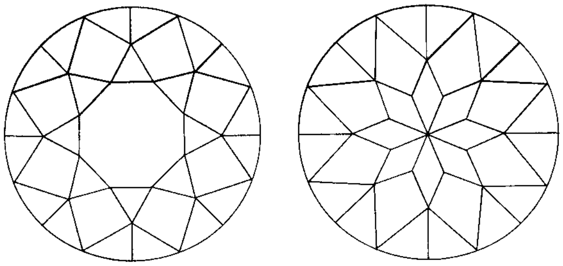


MAGNA CUT

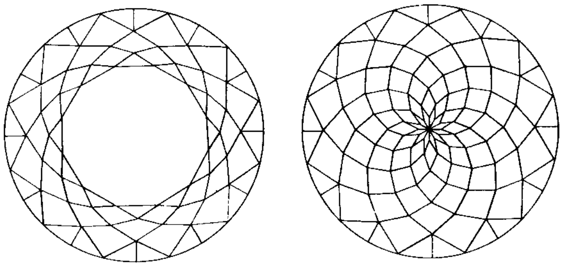
CUTTING STYLES



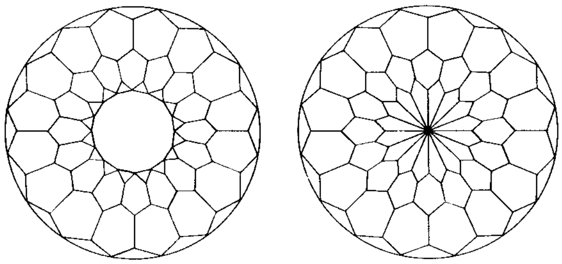
SCISSORS CUT



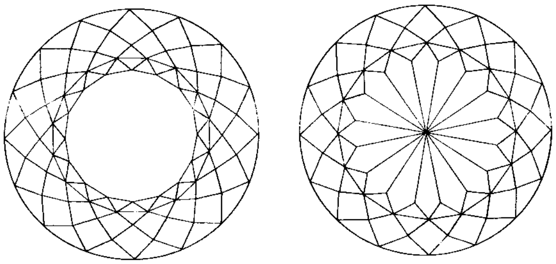
ZIRCON CUT



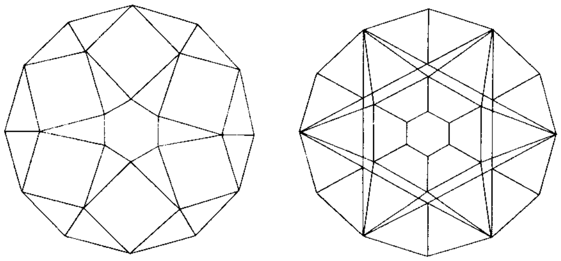
SPIRAL CUT



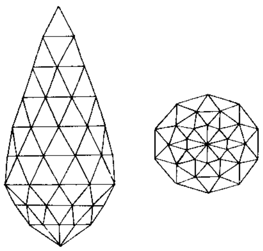
HONEYCOMB CUT



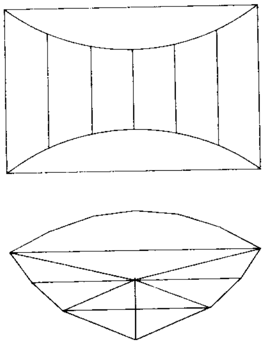
PORTUGUESE CUT



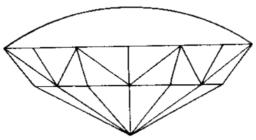
CAIRO STAR CUT



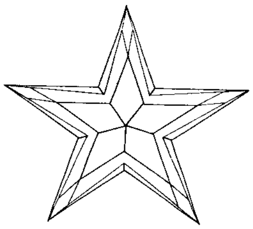
BRILLIANT-CUT BRIOLETTE



BENT TOP

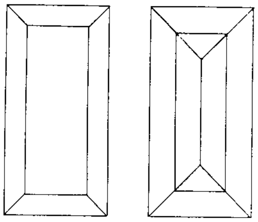


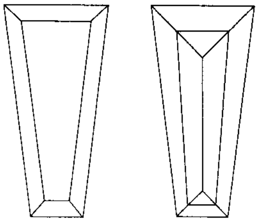
BUFF TOP

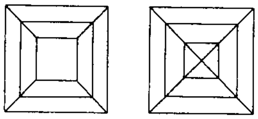


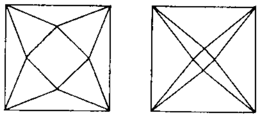
STAR CUT

CUTTING STYLES


BAGUETTE


TAPERED BAGUETTE


SQUARE CUT


FRENCH CUT

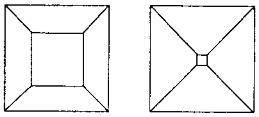
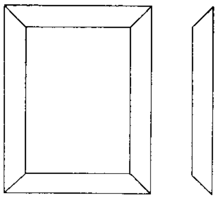
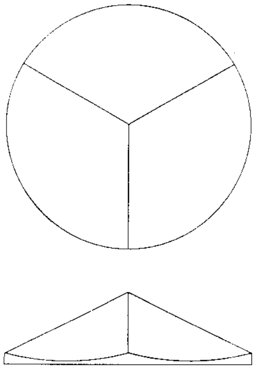
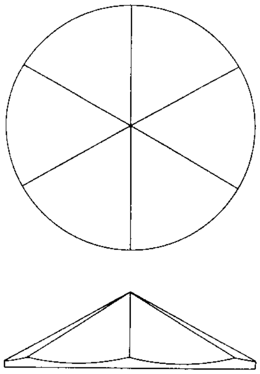
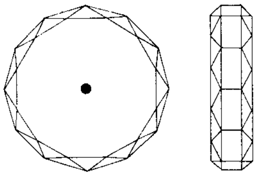


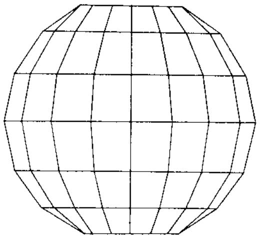
TABLE CUT

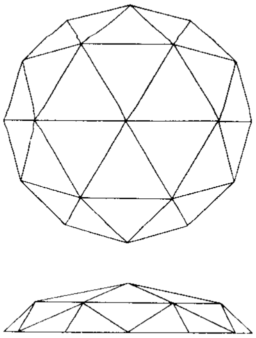

BEVEL CUT

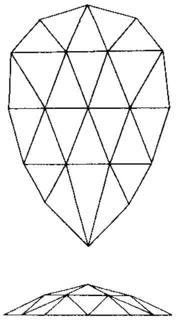

THREE-FACET ROSE CUT

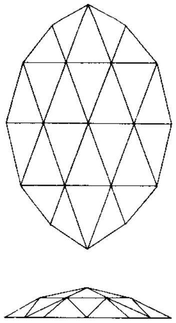

SIX-FACET ROSE CUT

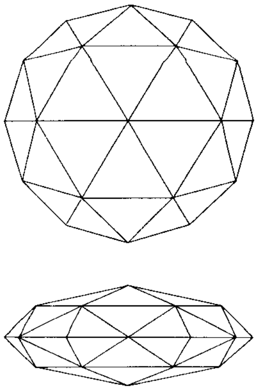

RONDELLE


STEP-CUT BEAD

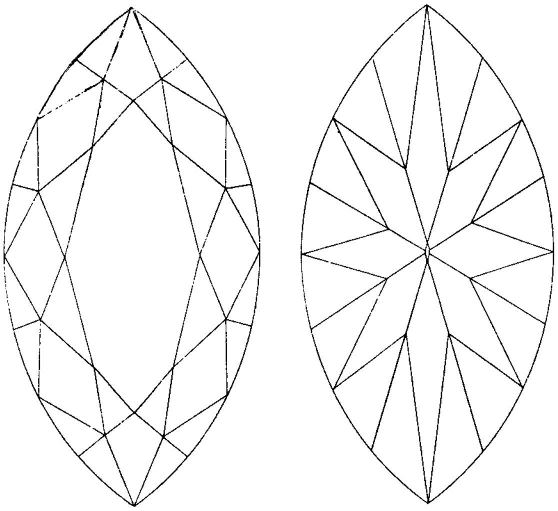




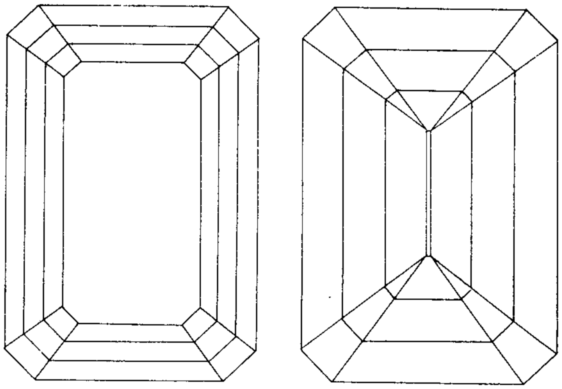




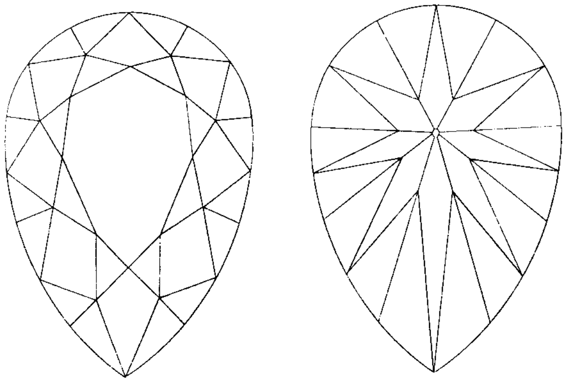
CUTTING STYLES



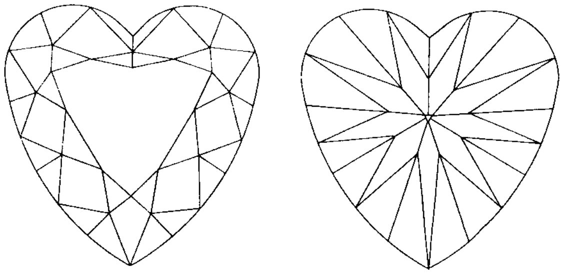
MARQUISE or NAVETTE CUT



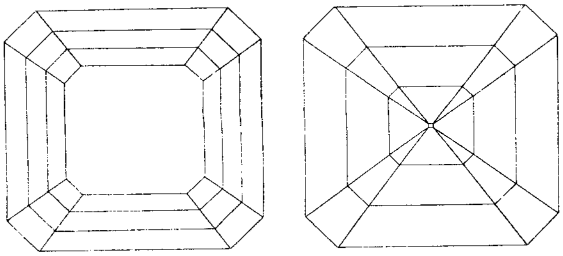
EMERALD CUT



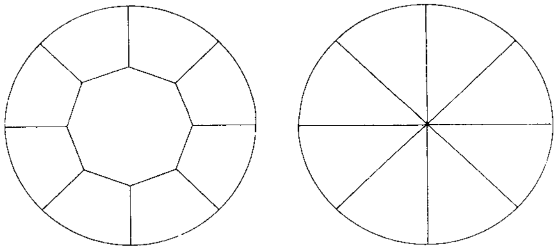
PEAR-SHAPE CUT



HEART-SHAPE CUT

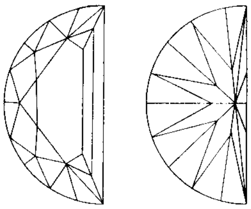


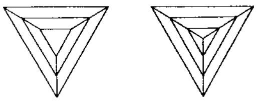
SQUARE EMERALD CUT

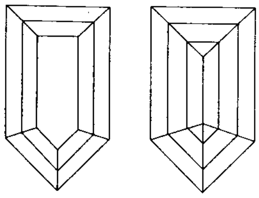


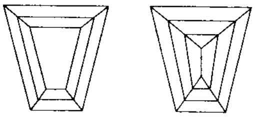
SINGLE CUT

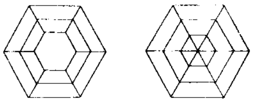
CUTTING STYLES

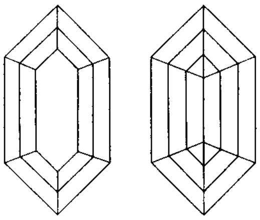

HALF-MOON CUT

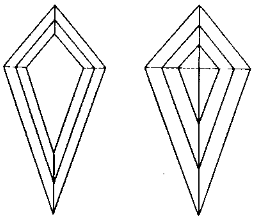

TRIANGLE CUT

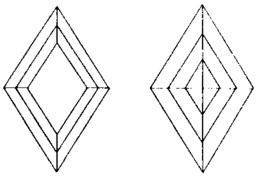

BULLET CUT

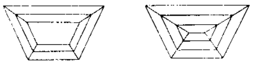

KEYSTONE CUT

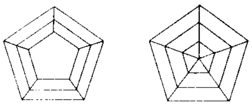

HEXAGON CUT

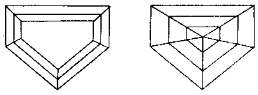

LONG HEXAGON CUT

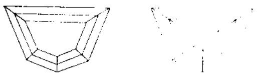

KITE CUT

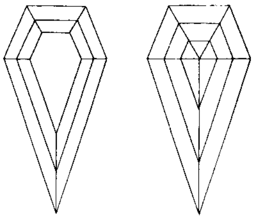

LOZENGE CUT

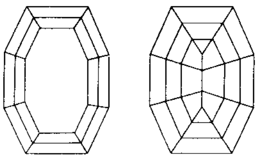

TRAPEZE CUT

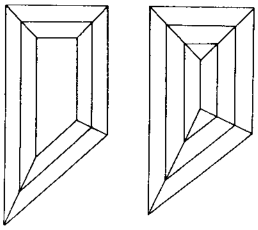

PENTAGON CUT

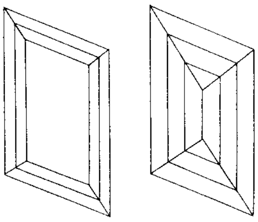

EPAULETTE CUT

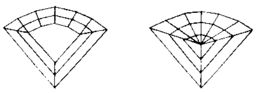

TAPERED PENTAGON CUT

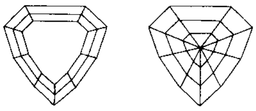

CUT-CORNER TRIANGLE CUT

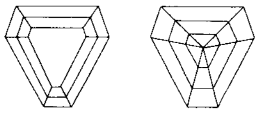

LONG OCTAGON CUT

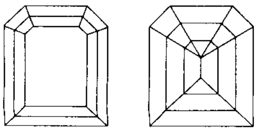

WHISTLE CUT


RHOMBOID CUT


FAN-SHAPE CUT


SHIELD CUT


CALF'S-HEAD CUT


WINDOW CUT